

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	4519	(move or moving or transfer\$3 or copying) same (updat\$3 or modification or modifying or modify) same (simultaneous\$2 or paralel\$ or coexistent or coexisting)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 09:59
L2	2311	(move or moving or transfer\$3 or copying) same (updat\$3 or modification or modifying or modify) same (data or record or table or information) same (simultaneous\$2 or paralel\$ or coexistent or coexisting)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 09:59
L3	254	(move or moving or transfer\$3 or copying) with (updat\$3 or modification or modifying or modify) with (data or record or table or information) with (simultaneous\$2 or paralel\$ or coexistent or coexisting)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:16
L4	19	3 and "707"/\$.ccls.	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:00
L5	2	"5742815".pn.	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:14
L6	1	5 and (simultaneous\$2 or paralel\$ or coexistent or coexisting)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:14
L7	86	3 and sync\$8	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:15
L8	58	7 and @AD<"19991214"	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:15
L9	58	8 not 4	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:15
L10	1	sync\$8 with (move or moving or transfer\$3 or copying) with (updat\$3 or modification or modifying or modify) with (data or record or table or information) with (simultaneous\$2 or paralel\$ or coexistent or coexisting)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:17
L11	1	sync\$8 with (move or moving or transfer\$3 or copying) with (updat\$3 or modification or modifying or modify) with (data or record or table or information) with (simultaneous\$2 or paralel\$ or coexistent or coexisting or concurrent\$2)	US-PGPUB; USPAT; EPO; JPO; DERWENT ; IBM_TDB	OR	OFF	2005/10/13 10:17



# STIC Search Report

## EIC 2100

STIC Database Tracking Number: 168359

TO: Cam-Linh T Nguyen  
Location: RND 3C21  
Art Unit: 2161  
Thursday, October 13, 2005

Case Serial Number: 09/461072

From: Emory Damron  
Location: EIC 2100  
RND 4B19  
Phone: 571-272-3520

[Emory.Damron@uspto.gov](mailto:Emory.Damron@uspto.gov)

### Search Notes

Dear Cam-Linh,

Please find below your fast and focused search.

References of potential pertinence have been tagged, but please review all the packets in case you like something I didn't.

Of those references which have been tagged, please note any manual highlighting which I've done within the document.

In addition to searching on Dialog, I also searched EPO/JPO/Derwent.

There may be a few decent references contained herein, but I'll let you determine how useful they may be to you.

Please contact me if I can refocus or expand any aspect of this case, and please take a moment to provide any feedback (on the form provided) so EIC 2100 may better serve your needs. Good Luck!

Sincerely,

Emory Damron

Technical Information Specialist

EIC 2100, US Patent & Trademark Office

Phone: (571) 272-3520

[Emory.damron@uspto.gov](mailto:Emory.damron@uspto.gov)



# FF

Access DB# 168356

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Nguyen, Cam Linh Examiner #: 79821 Date: 10/12/05  
Art Unit: 2161 Phone Number ~~38~~ 2-4024 Serial Number: 09/461,072  
Mail Box and Bldg/Room Location: RNO-3C21 Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Data Synchronization System and Method

Inventors (please provide full names): Georgat, Simcho

Earliest Priority Filing Date: 12/14/99

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

- copy (controller or module)
- updated (controller or module)
- copy data file
- Sync. with (parallel or concurrently or same time)

Fast + Focused

XCOPY



# STIC Search Results Feedback Form

**EIC 2100**

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Anne Hendrickson, EIC 2100 Team Leader  
272-3490, RND 4B28

## Voluntary Results Feedback Form

➤ I am an examiner in Workgroup: 2161 Example: 2133

➤ Relevant prior art **found**, search results used as follows:

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ Relevant prior art **not found**:

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC/EIC2100 RND, 4B28



Set	Items	Description
S1	4358923	COPY? OR COPIE? OR WRITE? OR STORE? OR RECORD?
S2	1497726	WRITING? OR WRITTEN? OR STORING? OR STORAG?
S3	5795732	CONTROLLER? OR MODULE? OR UNIT? OR SERVER? OR APPARATUS? OR COMPUTER? OR HARDWARE? OR PROCESSOR?
S4	2142937	UPDATE? OR UPDATING? OR UPGRAD? OR AMEND? OR CHANGE? OR MO- DIF? OR ALTER?
S5	2603105	DETECT? OR TRACK? OR MONITOR? OR ASCERTAIN? OR AUDIT?
S6	1552623	RECOGN? OR EVALUAT? OR ANALY? OR ASSESS? OR DETERMIN?
S7	1076964	SYNCHRON? OR "SAME"()TIME? OR CONTEMPORAN? OR SIMULTAN? OR SYNC????
S8	4021519	CONCURREN? OR COINCID? OR DURING? OR WHILE? OR WHILST? OR - PARALLEL?
S9	2645612	PLURAL? OR MULTIP? OR MULTITUD? OR SEVERAL? OR MANY OR NUM- EROUS? OR BULK? OR VOLUM?
S10	2393521	DATA? OR FILE? OR TABLE? ? OR RECORD? ?
S11	3659992	FIRST? OR INITIAL? OR BEGINNING? OR PRIMARY? OR 1ST OR SOU- RCE?
S12	262444	ORIGINAL? OR ONSET? OR EARLIEST? OR PREMIER? OR SEMINAL?
S13	6095593	2ND OR SECOND? OR ANOTHER? OR OTHER? OR ADDITIONAL? OR NUM- BER() (2 OR TWO)
S14	849156	EXTRA? OR BACKUP? OR AUXILIARY?
S15	5728	INTRODUCTORY? OR NUMBER() (ONE OR 1) OR LEADOFF? OR LEAD?()- OFF
S16	1249894	IC=G06F?
S17	940541	MC=T01?
S18	39349	S1:S2 AND S4 AND S3 AND S7:S8 AND S10
S19	1571	S18 AND S1:S2(5N)S3 AND S4:S6(5N)S3 AND S1:S2(5N)S7:S8
S20	349	S19 AND (S11:S12 OR S15) (5N) (S10 OR S1:S2)
S21	172	S19 AND S9(5N)S10
S22	964	S19 AND S10(5N)S1:S2(7N)S7:S8
S23	323	S22 AND S20:S21
S24	52	S20 AND S21
S25	213	S23 AND S16:S17
S26	238	S24:S25
S27	814071	PR=2000:2005
S28	228	S26 NOT S27
S29	228	IDPAT (sorted in duplicate/non-duplicate order)
S30	289	S20:S21 AND S16:S17
S31	275	S30 NOT S27
S32	275	IDPAT (sorted in duplicate/non-duplicate order)
S33	294	S29 OR S32

File 347:JAPIO Nov 1976-2005/Jun(Updated 051004)

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File 350:Derwent WPIX 1963-2005/UD,UM &UP=200565

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33/3,K/79 (Item 40 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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015554516 \*\*Image available\*\*  
WPI Acc No: 2003-616671/200358  
Related WPI Acc No: 2003-455849; 2003-746542; 2005-344508  
XRPX Acc No: N03-491084

**Dynamic database table synchronization method for computer system, involves resuming active transaction of table on source node when associated uncommitted changes is sent to destination node**

Patent Assignee: MICROSOFT CORP (MICT )  
Inventor: BERKOWITZ B T; CHRISTOFFERSON P A  
Number of Countries: 001 Number of Patents: 002  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 20030105768	A1	20030605	US 99342852	A	19990629	200358 B
			US 2003336174	A	20030103	
US 6934727	B2	20050823	US 99342852	A	19990629	200556
			US 2003336174	A	20030102	

Priority Applications (No Type Date): US 99342852 A 19990629; US 2003336174 A 20030103

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 20030105768	A1	43	G06F-007/00	Div ex application US 99342852 Div ex patent US 6529921
US 6934727	B2		G06F-017/30	Div ex application US 99342852 Div ex patent US 6529921

**Dynamic database table synchronization method for computer system, involves resuming active transaction of table on source node when associated uncommitted changes is sent to destination node**

Abstract (Basic):

... The **record data** (223) including committed **changes** to a **table** on a **source** node (202) interspersed with static **table data**, is sent to a destination node (203). An identical **copy** of the **table** including the committed **changes**, is produced on the destination node. An active transaction of the **table**, is paused on the **source** node, and is resume when associated uncommitted **changes** is sent to the destination node.

... 1) **computer** -readable medium **storing** dynamic **database table synchronization** program; and...

...For **synchronizing** dynamic **database table** in **computer** system including hand-held device, multiprocessor system, microprocessor-based or programmable consumer electronics, personal **computer**, minicomputer and mainframe **computer** connected to networks (claimed) such as Internet, intranet, local area network (LAN) and wide area...

...Enables dynamically changing **table** to be **copied** from one **computer** to another **while** still incorporating **changes**, without requiring activity on the **table** to be stopped for any significant time period  
...

...The figure shows the block diagram of the dynamic **database table synchronization** system...

... **record data** (223

...Title Terms: **DATABASE** ;

International Patent Class (Main): G06F-007/00 ...

... G06F-017/30

Manual Codes (EPI/S-X): T01-J05B4A ...

... T01-J05B4M ...

... T01-S03

33/3,K/80 (Item 41 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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015377149 \*\*Image available\*\*  
WPI Acc No: 2003-438087/200341  
Related WPI Acc No: 2003-662241  
XRPX Acc No: N03-349420

Data synchronization system between secondary system and distributed system, includes synchronization modules which process records in at least one main, replica and secondary databases using mapped records

Patent Assignee: INT BUSINESS MACHINES CORP (IBM )

Inventor: LEE A J; ZONDERVAN Q Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 6516327	B1	20030204	US 98113941	P	19981224	200341 B
			US 99404800	A	19990924	

Priority Applications (No Type Date): US 98113941 P 19981224; US 99404800 A 19990924

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 6516327	B1	25	G06F-017/30	Provisional application US 98113941

Data synchronization system between secondary system and distributed system, includes synchronization modules which process records in at least one main, replica and secondary databases using mapped records

Abstract (Basic):

... At least one modification database stores an entry corresponding to the main database record, the replica database record, the secondary database record. An update indicator shows whether the record has been updated since the first synchronization. Synchronization modules process the records in at least one main, replica and secondary databases using mapped records in the identification tables.

... a) a method for synchronizing data between secondary systems and distributed systems...

...b) a processor readable medium...

...Used for synchronizing data between secondary system and distributed system...

...Facilitates the use of electronic devices with the distributed database systems. Allows user to synchronize the data across multiple databases and ensure synchronization of data periodically...

...The figure shows a database storage structure...

Title Terms: DATA ;

International Patent Class (Main): G06F-017/30

Manual Codes (EPI/S-X): T01-J05B4A ...

... T01-J05B4M ...

... T01-S03



33/3,K/115 (Item 76 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

012769571 \*\*Image available\*\*  
WPI Acc No: 1999-575794/199949  
XRPX Acc No: N99-424953

Synchronous and integrated data management system for distributed  
database - updates data stored in multiple databases  
synchronously , based on updating demand from client

Patent Assignee: NEC CORP (NIDE )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 11249943	A	19990917	JP 9851097	A	19980303	199949 B

Priority Applications (No Type Date): JP 9851097 A 19980303

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 11249943	A	10	G06F-012/00	

Synchronous and integrated data management system for distributed  
database - ...

... updates data stored in multiple databases synchronously ,  
based on updating demand from client

...Abstract (Basic): NOVELTY - An updating management unit (34)  
updates data stored in database (13), when updating demand  
from a client is delivered by an updating demand delivery unit  
(43). A search unit searches another database , which stores data  
similar to database (13). When updating demand is detected,  
synchronous updating of data is performed in the two databases .  
DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for  
synchronization management method...

...USE - For synchronous and integrated data management for distributed  
database .

...

...ADVANTAGE - Enables collective updating of databases connected to a  
network, on real time basis without need for special application.  
Maintains version uniformity of data stored in all databases and  
simplifies application related to system construction. DESCRIPTION OF  
DRAWING(S) - The figure shows block diagram of synchronous management  
unit . (13) Database ; (34) Updating management unit ; (43)  
Updating demand delivery unit .

Title Terms: SYNCHRONOUS ;

International Patent Class (Main): G06F-012/00

Manual Codes (EPI/S-X): T01-H

33/3,K/148 (Item 109 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011693191 \*\*Image available\*\*  
WPI Acc No: 1998-110101/199810  
XRPX Acc No: N98-088210

Synchronising data between portable and desk-top personal computer systems - has second computer system which synchronises with different computer systems each having different data , and identifying and selecting first computer system that is synchronised based on unique name indicators

Patent Assignee: APPLE COMPUTER INC (APPY )  
Inventor: ALLEY P E; SMITH W R  
Number of Countries: 001 Number of Patents: 001  
Patent Family:

Patent No.	Kind	Date	Applicat No	Kind	Date	Week
US 5710922	A	19980120	US 9372606	A	19930602	199810 B
			US 95575013	A	19951218	

Priority Applications (No Type Date): US 9372606 A 19930602; US 95575013 A 19951218

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5710922	A	24	G06F-017/30	Cont of application US 9372606

Synchronising data between portable and desk-top personal computer systems...

...has second computer system which synchronises with different computer systems each having different data , and identifying and selecting first computer system that is synchronised based on unique name indicators

...Abstract (Basic): Each record stored in the memory of the first computer system that is intended to be synchronized is identified. The records are identified with a unique identification indicia and an indicia that indicates the last time that the record was altered . Using the time of the last synchronization information, each of the selected records that was added to or deleted from one of the computer systems since the last synchronization is identified and added to or deleted from the other computer system...

...Further, each of the records that was modified on one computer system is modified on the other. If conflicting actions have occurred on the two computer systems, then the conflicts are handled in accordance with a predetermined protocol. In a preferred aspect, a synchronization list is created that identifies each of these additions, deletions and modifications and either prioritises them in accordance with the protocol or informs the user of the...

...ADVANTAGE - Desktop computer can be used as back-up for portable computer in event of memory crash...

Title Terms: SYNCHRONISATION ;  
International Patent Class (Main): G06F-017/30  
Manual Codes (EPI/S-X): T01-G03 ...

... T01-G05B ...

... T01-H01C4 ...

... T01-J05B2

33/3,K/162 (Item 123 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

011541529 \*\*Image available\*\*  
WPI Acc No: 1997-518010/199748  
XRPX Acc No: N97-431133

Image forming apparatus with electronic sorting function - reads last  
image data from first memory and simultaneously writes image  
data on corresponding area according to updated memory address

Patent Assignee: CANON KK (CANO )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 9245157	A	19970919	JP 9654632	A	19960312	199748 B

Priority Applications (No Type Date): JP 9654632 A 19960312

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 9245157	A	15	G06T-001/00	

Image forming apparatus with electronic sorting function...

...reads last image data from first memory and simultaneously writes  
image data on corresponding area according to updated memory address

...Abstract (Basic): The apparatus a divider unit which divides a  
single memory to a set of areas. A memory address is generated based on  
the divided areas. Based on the generated memory address, a first  
memory stores an image data from the set of areas. A first read-out  
unit reads out the stored image data. The read image data are  
stored in a second memory. A second read-out unit reads out the  
image data stored in the second memory...

...The stored image data is then output visible, by an output unit ,  
thereby updating a memory address by an updating unit . As the  
last unit from the first memory unit , simultaneously , the image  
data are written on the corresponding area of the memory, according  
to the updated memory address...

...Title Terms: APPARATUS ;

...Manual Codes (EPI/S-X): T01-J10A ...

... T01-J10A2 ...

... T01-J10E

33/3,K/165 (Item 126 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011239411 \*\*Image available\*\*  
WPI Acc No: 1997-217314/199720  
XRPX Acc No: N97-179297

File synchronous method of multi host structure system - involves  
transferring copy of updated first synchronous file from first  
host to second host according to first synchronous definition, to  
perform renewal processing of second synchronous file

Patent Assignee: NEC CORP (NIDE )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 9062556	A	19970307	JP 95234714	A	19950821	199720 B

Priority Applications (No Type Date): JP 95234714 A 19950821

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 9062556	A	8	G06F-012/00	

File synchronous method of multi host structure system...

...involves transferring copy of updated first synchronous file  
from first host to second host according to first synchronous  
definition, to perform renewal processing of second synchronous file

...Abstract (Basic): The method involves making a first synchronous  
file (1-4) of a first host (1) to perform occupancy exclusion of  
updating job during starting processing by a first exclusion  
management unit (1-1), according to a first synchronous definition  
(1-2). When occupancy exclusion demand of a second synchronous file  
(2-4) of a second host (2) is notified to a second exclusion management  
unit (2-1), the demand result is waited...

...Then the occupancy exclusion of the second synchronous file is  
successful. The occupancy exclusion of the first synchronous file  
is changed to share exclusion and reference to that file is  
performed without any interruption. The first exclusion management  
unit (1-1) performs occupancy exclusion release of the first  
synchronous file during final processing of updating job, after  
notifying occupancy exclusion release demand of the second synchronous  
file to the second exclusions management unit . A file transfer  
unit (1-3) transfers copy of updated first synchronous file  
to the second host according to the first synchronous definition, to  
perform renewal processing of the second synchronous file .

...ADVANTAGE - Avoids generation of deadlock between hosts at time of file  
transfer. Enables to maintain conformance of synchronous file  
contents among multiple hosts

Title Terms: FILE ;

International Patent Class (Main): G06F-012/00

Manual Codes (EPI/S-X): T01-F02C ...

... T01-F05E

33/3,K/171 (Item 132 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011087163 \*\*Image available\*\*  
WPI Acc No: 1997-065087/199706  
XRPX Acc No: N97-053632

Data queue synchronisation method for asymmetric reflective memories  
- involves storing queue element in global write only address space  
of reflective memory which is copied to local read/ write address  
space of second processor

Patent Assignee: DIGITAL EQUIP CORP (DIGI )

Inventor: CARDOZA W M

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5588132	A	19961224	US 94326682	A	19941020	199706 B

Priority Applications (No Type Date): US 94326682 A 19941020

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5588132	A	14	G06F-013/14	

Data queue synchronisation method for asymmetric reflective memories

...

...involves storing queue element in global write only address space of  
reflective memory which is copied to local read/ write address space  
of second processor

...Abstract (Basic): The method for synchronising data modifications  
involves storing a queue element in a global write-only address  
space of an asymmetric reflective memory of a first processor . The  
asymmetric reflective memory copies the queue element to a local  
read/ write address space of a second processor . The queue element  
stores common data to be shared by the processors . A queue header  
is stored in the global write-only address space of the first  
processor . The asymmetric reflective memory copies the queue header  
to the local read/ write address space of the second processor .

...

...The second processor , in response to detecting the queue element,  
reads the queue header and disables it. The common data stored in  
the queue element is processed by the second processor . The queue  
element is marked as processed in the global address space of the  
asymmetric reflective memory. The memory copies the queue element to  
a local read/ write address space of the first memory after marking

...

...USE/ADVANTAGE - Synchronises addition and removal of elements of  
queues stored as common data structure in reflective memories  
concurrently accessed by networked computers with introducing  
additional delays in operation of computer system

Title Terms: DATA ;

International Patent Class (Main): G06F-013/14

Manual Codes (EPI/S-X): T01-H01A ...

... T01-H03B

33/3,K/181 (Item 142 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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010683139 \*\*Image available\*\*  
WPI Acc No: 1996-180094/199618  
XRPX Acc No: N96-151301

**Register status protection appts. with micro- controller - detects simultaneous occurrence of instruction and update signal and selectively transfers status bit or data bit to register under control of detector**

Patent Assignee: KONINK PHILIPS ELECTRONICS NV (PHIG ); PHILIPS ELECTRONICS NV (PHIG ); PHILIPS NORDEN AB (PHIG ); PHILIPS ELECTRONICS NORTH AMERICA CORP (PHIG )

Inventor: BIRNS N; GOODHUE G; OSTLER F; ROY S; SCHOLANDER K; BIRNS N E; GOODHUE G K; OSTLER F L; SHOLANDER K A

Number of Countries: 019 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
WO 9608770	A2	19960321	WO 95IB673	A	19950822	199618 B
WO 9608770	A3	19960530	WO 95IB673	A	19950822	199633
EP 729604	A1	19960904	EP 95927069	A	19950822	199640
			WO 95IB673	A	19950822	
JP 9505429	W	19970527	WO 95IB673	A	19950822	199731
			JP 96510024	A	19950822	
US 5655135	A	19970805	US 94308059	A	19940916	199737
EP 729604	B1	20021113	EP 95927069	A	19950822	200282
			WO 95IB673	A	19950822	
DE 69528815	E	20021219	DE 628815	A	19950822	200307
			EP 95927069	A	19950822	
			WO 95IB673	A	19950822	

Priority Applications (No Type Date): US 94308059 A 19940916

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
WO 9608770	A2 E	13	G06F-012/16	
			Designated States (National): JP KR	
			Designated States (Regional): AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE	
WO 9608770	A3		G06F-012/16	
EP 729604	A1 E	1	G06F-009/308	Based on patent WO 9608770
			Designated States (Regional): DE FR GB IT NL	
JP 9505429	W	19	G06F-012/16	Based on patent WO 9608770
US 5655135	A	8	G06F-015/00	
EP 729604	B1 E		G06F-009/308	Based on patent WO 9608770
			Designated States (Regional): DE FR GB IT NL	
DE 69528815	E		G06F-009/308	Based on patent EP 729604
				Based on patent WO 9608770

**Register status protection appts. with micro- controller - ...**

**...detects simultaneous occurrence of instruction and update signal and selectively transfers status bit or data bit to register under control of detector**

...Abstract (Basic): The appts. has a microcontroller with a register (114) to **store** a status bit (HWDATA) in response to an **update** signal (HWUPDATE) and a device for functionally preventing the register from being overwritten by a **data** bit (WRLTEDATA) in response to a **write** signal ( WRITEST ) associated with a read- **modify** - **write** (RMW) instruction if the **update** signal and the instruction occur

simultaneously .

...

...A detector (123, 124) detects **simultaneous** occurrence of the instruction and the **update** signal. A transfer device (115, 116, 119) selectively transfers the status bit or the **data** bit to the register under control of the detector

...Abstract (Equivalent): In a **computer** system having a **first** register comprising first means to **store** a **hardware - modifiable** bit in response to a **hardware - update** signal, said first means being connected to a bus, and second means for executing a read- **modify - write** operation by generating a read- **modify - write** signal...

...a) third means for selectively preventing overwriting of said **first** means during a read- **modify - write** operation if said **stored hardware** -modifiable bit has been **updated** by a **hardware** during the read- **modify - write** operation, said third means comprising...

...i) a protection flip-flop for **storing** a first state indicating whether said stored **hardware - modifiable** bit has been **updated** by said **hardware** during the read- **modify - write** operation, said protection flip-flop having an output...

...output and the first switch control input and having an input connected to receive a **write** control signal, said **first** gating means in response to a **write** control signal and an output from the protection flip-flop indicating it is not in...

...producing an output to the first switch control input which is operable to allow a **write** portion of the read- **modify - write** operation to overwrite the **first** means, said first gating means in response to a **write** control signal and an output from the protection flip-flop indicating it is in its...

...producing an output to the first switch control input which is adapted to prevent a **write** portion of the read- **modify - write** operation from overwriting the **first** means...

...Title Terms: **APPARATUS** ;

International Patent Class (Main): **G06F-009/308** ...

... **G06F-012/16** ...

... **G06F-015/00**

International Patent Class (Additional): **G06F-009/34** ...

Manual Codes (EPI/S-X): **T01-H01C4** ...



33/3,K/184 (Item 145 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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010513510 \*\*Image available\*\*  
WPI Acc No: 1996-010461/199601  
XRPX Acc No: N96-009115

Re- synchronising secondary and primary database of automatic call distribution system - suspending selected database update functionality of redundancy controller and copying files and shared memory in phase from redundant to primary controller while continuing to other operations

Patent Assignee: ASPECT TELECOM CORP (ASPE-N)

Inventor: BUTENSKY M J; COLLINS K T; GIBBS R A; GRAFFT C A; JOHNSON E M; YANG Y

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5469503	A	19951121	US 9397632	A	19930727	199601 B
			US 93138547	A	19931014	

Priority Applications (No Type Date): US 9397632 A 19930727; US 93138547 A 19931014

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5469503	A	6	H04M-003/00	Cont of application US 9397632

Re- synchronising secondary and primary database of automatic call distribution system...

...suspending selected database update functionality of redundancy controller and copying files and shared memory in phase from redundant to primary controller while continuing to other operations

...Abstract (Basic): The method involves using a controller (26) to test for match...

...or synchronisation between detail tables of a primary system controller (12) and a secondary system controller (112) in a mass storage complex (18,118). If the detail tables are...

... synchronised , a copying process is skipped. Otherwise, the detail...

... tables are copied to the primary system controller through...

...dedicated data transfer path (40) e.g. Ethernet link to the mass...

... storage complex. During the copying process, the secondary database is locked against updating of configuration information, allowing redundancy restoration to begin. The database files are copied to the inactive controller to re- synchronise system configuration...

...If the ACD is equipped with voice system, the voice system database is copied to the inactive controller . If certain...

...portion of memory (16,116) is shared, the contents are subject to modification , thus shared memory operations are suspended and the relevant regions are copied under control of the controller to inactive RAM. During RAM copying , no terminal inputs is accepted and no incoming calls are answered. But all queued calls...

... controller are unlocked and controller causes a switch over in...

...control to the primary system controller .

...

...re- synchronisation by primary system controller .

Title Terms: SYNCHRONISATION ;

...International Patent Class (Additional): G06F-011/00

Manual Codes (EPI/S-X): T01-G03 ...

... T01-G05A ...

... T01-J05B4

33/3,K/208 (Item 169 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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009496653

WPI Acc No: 1993-190189/199324

XRFX Acc No: N93-146166

High speed disk array storage system data check appts. -  
simultaneously transfers write data to storage devices, executing  
write checking process equivalent to read checking process in read  
operation

Patent Assignee: FUJITSU LTD (FUIT )

Inventor: NISHIYAMA S

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 546839	A2	19930616	EP 92311313	A	19921210	199324 B
EP 546839	A3	19940216	EP 92311313	A	19921210	199518
US 5477552	A	19951219	US 92987680	A	19921209	199605
EP 546839	B1	19980318	EP 92311313	A	19921210	199815
DE 69224800	E	19980423	DE 624800	A	19921210	199822
			EP 92311313	A	19921210	

Priority Applications (No Type Date): JP 91330340 A 19911213

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 546839	A2	E	21	G11B-020/18	
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Designated States (Regional): DE FR GB

US 5477552	A		19	G06F-011/10	
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EP 546839	B1	E	21	G11B-020/18	
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Designated States (Regional): DE FR GB

DE 69224800	E			G11B-020/18	Based on patent EP 546839
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EP 546839	A3			G11B-020/18	
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High speed disk array storage system data check appts...

... simultaneously transfers write data to storage devices,  
executing write checking process equivalent to read checking process in  
read operation

...Abstract (Basic): A disk array system contains a number of storage  
devices. Error detecting codes for a host device are checked and  
stored in a register unit (46...

...The write data are divided and stored . Error detecting codes for  
the storage devices are generated and transmitted through paths used  
for the read data .

...

...The write data are recombined into host data and error detecting  
codes for the host device are generated. The generated codes are  
compared (48) with the codes stored in the register unit to check  
whether they correspond...

...A similar method is used to test for errors in read data .

...

...USE/ADVANTAGE - E.g. in disk array system with number of magnetic disk  
drives. Allows data to be simultaneously input and output. High  
speed operation. Fault tolerant system. High reliability

...Abstract (Equivalent): A disk array system contains a number of **storage** devices. Error detecting codes for a host device are checked and **stored** in a register **unit** (46...

...The **write data** are divided and **stored**. Error detecting codes for the **storage** devices are generated and transmitted through paths used for the read **data**.

...The **write data** are recombined into host **data** and error detecting codes for the host device are generated. The generated codes are compared (48) with the codes **stored** in the register **unit** to check whether they correspond...

...A similar method is used to test for errors in read **data**.

...USE/ADVANTAGE - E.g. in disk array system with number of magnetic disk drives. Allows **data** to be **simultaneously** input and output. High speed operation. Fault tolerant system. High reliability

...Abstract (Equivalent): For **data** checking in a **storage** system such as a disk array system which includes **several storage** devices, **write data** have error detecting codes for a host device thereof checked and **stored** in a register **unit**, **write data** are divided, error detecting codes for **storage** devices are generated, and **write data** are written in **storage** devices are **simultaneously** transferred through paths used for read **data**. **write data** are combined into host **data**, error detecting codes for host device are generated, and generated codes are compared with codes **stored** in register **unit** so as to check whether they correspond to each other. **Alternatively**, read **data** have error detecting codes for **storage** devices thereof checked and **stored** in a register **unit**. In that case read **data** are combined into host **data** to be transferred through host device, combined **data** is transferred through paths used for **write data**, **data** are divided into **storage** device **data**, error detecting codes for **storage** devices are generated, and generated codes are compared with codes **stored** in register **unit** so as to check whether they correspond to each other...

...Title Terms: **STORAGE** ;

International Patent Class (Main): G06F-011/10 ...

Manual Codes (EPI/S-X): T01-G01A ...

33/3,K/224 (Item 185 from file: 350)  
DIALOG(R)File 350:Derwent WPIX

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008815653 \*\*Image available\*\*

WPI Acc No: 1991-319666/199144

XRFX Acc No: N91-245053

Shared data concurrency controlling method for data processor -  
has data blocks each with two control fields one being changed at  
start of update and other being changed at end of update

Patent Assignee: IBM CORP (IBMC ); INT BUSINESS MACHINES CORP (IBMC )

Inventor: AMOLD M E; ARNOLD M E; BATE G P

Number of Countries: 004 Number of Patents: 005

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 454610	A	19911030	EP 91480058	A	19910329	199144 B
EP 454610	A3	19920805	EP 91480058	A	19910329	199336
US 5255387	A	19931019	US 90515895	A	19900427	199343
EP 454610	B1	19950222	EP 91480058	A	19910329	199512
DE 69107506	E	19950330	DE 607506	A	19910329	199518
			EP 91480058	A	19910329	

Priority Applications (No Type Date): US 90515895 A 19900427

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
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EP 454610	A				
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Designated States (Regional): DE FR GB

US 5255387	A		8	G06F-015/40	
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EP 454610	B1	E	11	G06F-017/30	
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Designated States (Regional): DE FR GB

DE 69107506	E			G06F-017/30	Based on patent EP 454610
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Shared data concurrency controlling method for data processor -  
...

...has data blocks each with two control fields one being changed at  
start of update and other being changed at end of update

...Abstract (Basic): The method involves handling data update and query  
operations each data block having two control fields. Before any  
data in the shared memory is modified, one of the control fields has  
its value modified. The shared memory data is then modified and  
then the second control field is updated to the same new value as the  
first control field. During a query operation the data and the  
control fields of interest are read into private storage. The values  
of the control fields are compared and if different the data is  
ignored until the values are consistent...

...ADVANTAGE - Provides performance improvement in accessing shared data .  
(9pp Dwg.No.2/5)

...Abstract (Equivalent): Method for concurrency control of shared data  
updates and queries in a data processing system comprising a shared  
memory, which comprises a shared set of data (404) consisting of a  
plurality of records (402) comprising data fields, said data  
processing system comprising at least a computer (100) having access  
to shared memory, each computer comprising private storage, update  
completing means for sequentially up dating records in the shared  
memory and query means for concurrently querying records in shared  
memory in response to a query request, said method being characterised  
by the steps of: in an update operation, a) for each record to be

**updated** in shared memory, where first and second control fields are associated with each **record**, setting (200) a **first** one of said first and second control fields in shared memory to a value different ...

...present value, so that values of first and second control fields differ, indicating that the **records** are in the process of being **updated**, b) **updating** (202-208) the **data** fields of the **records**, and c) setting (212) the value of the second control field in shared memory to the value of the first control field indicating that the **update** is completed; and in a query operation, d) **copying** (302) **records** to be queried and their associated first and second control fields from shared memory to private **storage**, and e) denying the query request (304) for any **record** in which the values of the first and second control fields in private **storage** are not equal; and f) repeating (310,312) steps d) and e) for the query operation if the values of the control fields in private **storage** are not equal...

...Abstract (Equivalent): Before any **data** in the shared memory are **modified**, a value different from the present value is **written** in one of the control fields. The **data** are then **updated**. The other shared memory control field is **updated** to the new value, making the values of the control fields identical once again...

... **During** query operations, the **data** and control fields of interest are copied into a private **storage**. The values of the control fields in the private memory are compared. If the values are equal, the **data** in the private **storage** are considered to be consistent. Otherwise, the **data** are considered to be in the process of being **updated** and are ignored until the values of the shared memory control fields become equal...

...USE/ADVANTAGE - Increasing system throughput in **data** management systems

...Title Terms: **DATA** ;

International Patent Class (Main): **G06F-015/40** ...

... **G06F-017/30**

International Patent Class (Additional): **G06F-009/46**

Manual Codes (EPI/S-X): **T01-F02** ...

... **T01-J05B**

33/3,K/250 (Item 211 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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007874192

WPI Acc No: 1989-139304/198919

XRPX Acc No: N89-106376

**PC multi- processor system with multiple memories - has co- processor  
updating both video and shadow buffers simultaneously when controlling  
video buffer**

Patent Assignee: IBM CORP (IBMC ); INT BUSINESS MACHINES CORP (IBMC )

Inventor: FOGG R G; IRWIN J W

Number of Countries: 004 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 315321	A	19890510	EP 88309184	A	19881003	198919 B
US 5008816	A	19910416	US 87117615	A	19871106	199118
EP 315321	B1	19950104	EP 88309184	A	19881003	199506
DE 3852695	G	19950216	DE 3852695	A	19881003	199512
			EP 88309184	A	19881003	

Priority Applications (No Type Date): US 87117715 A 19871106

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
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EP 315321	A	E 18		
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Designated States (Regional): DE FR GB

EP 315321	B1	E 18	G06F-015/16	
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Designated States (Regional): DE FR GB

DE 3852695	G		G06F-015/16	Based on patent EP 315321
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**PC multi- processor system with multiple memories...**

**...has co- processor updating both video and shadow buffers  
simultaneously when controlling video buffer**

...Abstract (Basic): The system includes at least a main **processor** , a w-  
**processor** and a video buffer **store** coupled to accept **data** from  
either of the **processors** for display. In order to maintain a **record**  
of **data** for display from the w- **processor** when the main **processor**  
is controlling the video buffer, a shadow buffer is provided. This  
maintains an **updated** version of display **data** from the w- **processor**  
at all times...

...When the main **processor** is controlling the video buffer, the w-  
**processor** accesses the shadow buffer. When the w- **processor** is  
controlling the video buffer, it **updates** both the video and the  
shadow buffer **simultaneously** .

...Abstract (Equivalent): A multi- **processor data** processing system  
including a **first processor** (12) and a second **processor** (22), a  
first memory (18) independently accessible by each **processor** , and a  
second memory (24), characterised in that the second **processor** (22)  
is capable of **simultaneously** accessing both the first and second  
memories (18, 24) for **write** operations when the **first processor**  
(12) is not accessing either of the memories so to maintain a **copy** in  
the second memory of the **record of data written** in the **first**  
memory, and is capable of accessing the second memory (24) when the  
**first processor** is accessing the first memory (18), so continuing to  
maintain a **copy** in the second memory of the **record of data** and in  
that the **first processor** (12) is capable of accessing the second

memory (24) for read operations to transfer said **copy** of **data** from the second memory to the first memory (18) prior to the second **processor** (22) being given access to the first memory...

...Abstract (Equivalent): circuit that provides read access to the memory location. The memory system also includes the **controller** that receives control information. A **writing** circuit is further included that provides **write** access to either only a **first** portion of the memory locations, or **simultaneously** several portions of the memory locations, is designed by the control information. This invention further includes a memory system that provides several memory locations for the **storage** of information together with the **controller** having a first port and a second port. The first port provides access to the ...

...Still further, the invention includes a memory system having a **first** group of memory locations that **store** information in accordance with the **first** address range and a second group of memory locations. The two groups of memory locations are connected to a **controller** that provides **write** access to the **first** group of memory locations in a response to **write** commands, having addresses within the first address range and **simultaneously writing** each **write** command address in the second group of memory locations...

...ADVANTAGE - Chances operation of RT **processor** with AT coprocessor.  
(17pp Dwg.No.4/11)

...Title Terms: **PROCESSOR** ;

International Patent Class (Main): **G06F-015/16**

International Patent Class (Additional): **G06F-012/02** ...

... **G06F-013/10**

Manual Codes (EPI/S-X): **T01-C04** ...

... **T01-H01A** ...

... **T01-J02B**



33/3,K/252 (Item 213 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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007813095

WPI Acc No: 1989-078207/198911

XRPX Acc No: N89-059748

Random access memory wit dual port addressing - allows concurrent read  
and write operations with memory cells cross-coupled by active circuit

Patent Assignee: TEKTRONIX INC (TEKT )

Inventor: GREUB H J

Number of Countries: 004 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 306661	A	19890315	EP 90104141	A	19900303	198911 B
US 4833649	A	19890523	US 8793931	A	19870908	198924

Priority Applications (No Type Date): US 8793931 A 19870908

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 306661	A	E	11		

Designated States (Regional): DE FR NL

US 4833649	A	9
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... allows concurrent read and write operations with memory cells  
cross-coupled by active circuit

...Abstract (Basic): The dual port memory has a matrix of memory units ,  
each comprising a pair of memory cells. Each cell within a unit  
stores a signal data bit and is independently accessible for read/  
write operations via separate data , address and control buses.  
However the cells are cross-coupled so that if the bit state in one  
cell is changed during a write operation the other cell changes  
to the same state at the end of the write operation...

...an active circuit which provides any additional charging current which  
may be needed after the write operation to minimise the  
cross-coupling effect on data write speeds...

...ADVANTAGE - Read and write operations can be concurrent without loss  
of processing speed.

...Abstract (Equivalent): The memory unit has two ports, each comprising  
busses for conveying control and data signals. A pair of memory cells  
are provided, one corresponding to each port. Each cell stores a  
single data bit of one of first and second states, and is  
independently read and write accessed through the corresponding port.  
The memory cells are cross-coupled so that when the state of a bit  
stored by one of the cells of the memory unit is changed when  
write accessed, the other cell of the memory unit changes the  
state of its stored bit following the write access of said one cell  
...

...of the cross-coupling signal in accordance with the state of the memory  
cell being write accessed. (9pp)1

...Title Terms: CONCURRENT ;

International Patent Class (Additional): G06F-013/16 ...

... G06F-015/16

Manual Codes (EPI/S-X): T01-H01D ...

... T01-H05B ...

... T01-J02

33/3,K/265 (Item 226 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
(c) 2005 Thomson Derwent. All rts. reserv.

007175259

WPI Acc No: 1987-172268/198725

XRPX Acc No: N87-129311

Database processing device with updating lock - has concurrent processing through terminals and executes record update only if data has not been updated by another terminal

Patent Assignee: OKI ELECTRIC IND CO LTD (OKID )

Inventor: HANIUDA H; HIKITA S; KAWAKAMI S; SAKAMOTO A; YAMAMOTO H

Number of Countries: 002 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2184575	A	19870624	GB 8531786	A	19851224	198725 B
US 4821175	A	19890411	US 85813077	A	19851224	198917
GB 2184575	B	19891011				198941

Priority Applications (No Type Date): GB 8531786 A 19851224; US 85813077 A 19851224

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 4821175	A	22		

Database processing device with updating lock...

...has concurrent processing through terminals and executes record update only if data has not been updated by another terminal

...Abstract (Basic): A database processing device (10) executes concurrent processing in accessing a database (11) through independent terminal units. The device upon a request through a specific terminal to update data stored in a record in the database after reading out the data (15), confirms (17) whether the data has been updated by another terminal or not, and executes updating (18) only when the data has not been updated. A information memory lock has inputs and outputs for receiving and/or delivering data from and/or to the database. The data stored includes update control information for the confirmation...

...ADVANTAGE - Conflicting updating by more than one terminal is avoided

...Abstract (Equivalent): A database processing device for receiving data including instruction information and record designation information from a plurality of independent terminal units and concurrently processing data stored in a record in a database designated by said record designation information, comprising: transmission means for receiving or transmitting data from or to said terminals; database control means for receiving the data from said transmission means, controlling said execution of said processing in conformity with said instruction information included in said data, and delivering data available as a processed result to said transmission means; retrieval means for retrieving a record designated by the record designation information included in the received data, and delivering data stored in said record and including update control information; update means for updating said data stored in the record designated by the record designation information of the received data to include the same received data but including the update control information, and

delivering **data** including information indicative of completion of the **updating**; **concurrent** execution control means for receiving the **data** to be **updated** by said updata means and the **data** stored in the **record** designated by the **record** designated information included in said **data**, and comparing updata control information included in both said **data**, said **concurrent** execution control means delivering, after **updating** the **update** control information included in the **data** to be **updated** when the **update** control information of both **data** match, **data** having the **updated** control information, while delivering **data** including information indicative of delete of the updata when the updata control information included in both said **data** do not match, said updata means, upon receiving **data** including, information indicative of the delete of the **update**, executing the updata delete, and delivering **data** including information indicative of completion of

...Abstract (Equivalent): A **database** processing device executes **concurrent** processing in accessing a **data** base through independent terminal units. The **database** processing device, upon **updating** **data** stored in a **record** after reading out the **data** stored in the **record** in the **database** and correcting or altering the **data** through a specific terminal, confirms whether or not the **data** stored in the **record** have been **updated** by terminals, and executes **updating** only when the **data** have not already been **updated**.

...

...The **data** stored in the **record** includes **update** control information for confirming whether or not the **data** have been **updated** by other terminals...

...ADVANTAGE - Improves **concurrency** of processings in **database** system.  
(22pp)s

Title Terms: **DATABASE** ;

International Patent Class (Additional): **G06F-012/14** ...

... **G06F-015/40**

Manual Codes (EPI/S-X): **T01-H01C** ...

... **T01-J05B**

33/3,K/186 (Item 147 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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010483626 \*\*Image available\*\*

WPI Acc No: 1995-384946/199550

Database **management method** - involves updating of data by database  
**renewal process based on updated information**

Patent Assignee: SEKISUI CHEM IND CO LTD (SEKI )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 7248952	A	19950926	JP 9439576	A	19940310	199550 B

Priority Applications (No Type Date): JP 9439576 A 19940310

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
JP 7248952	A		5	G06F-012/00	

Database **management method**...

...involves updating of data by database **renewal process based on**  
**updated information**

...Abstract (Basic): The **database** management method involves outputting  
**updated** information to a second **computer** system (S12) from a first  
system (S11). An abolition **data** memory in the **first computer**  
**stores** the **data** before the **data** are **updated** by a **first**  
processing recognition signal...

...A new **data** memory now **stores** the new **updated data** during a  
second processing signal. An **updating** information output process  
outputs the **updated** information to the second **computer** system along  
with the second processing signal and also the **first** processing  
signal. A **database** renewal process is provided in the second  
**computer** system with **updates** the database on the **updating**  
information...

...ADVANTAGE - Provides good efficiency. Enhances secure of **database**  
conformance...

Title Terms: **DATABASE** ;

International Patent Class (Main): **G06F-012/00**

Manual Codes (EPI/S-X): **T01-G03** ...

... **T01-G05A** ...

... **T01-J05B4**

33/3,K/166 (Item 127 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011239405 \*\*Image available\*\*  
WPI Acc No: 1997-217308/199720  
XRPX Acc No: N97-179291

File renewal control method for on-line transaction system using  
computer - involves updating data file per block through second  
buffer to journal file based on log of renewal of record

Patent Assignee: TOSHIBA KK (TOKE )

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 9062550	A	19970307	JP 95212079	A	19950821	199720 B

Priority Applications (No Type Date): JP 95212079 A 19950821

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
JP 9062550	A	8	G06F-012/00	

File renewal control method for on-line transaction system using  
computer - ...

...involves updating data file per block through second buffer to  
journal file based on log of renewal of record

...Abstract (Basic): The method involves performing updating processing  
of a data file (14) based on the record renewal demand by a  
transaction (11-1-11-n). A first controller (15) performs exclusive  
control of simultaneous access to the record of demanded data  
file. A first buffer (16) holds the updating data temporarily  
and a second controller (17) performs renewal of record of demanded  
data file stored in the first buffer. An updating log  
management part (18) forms the log of renewal of the record in the  
first buffer...

...A first processing part records the formed updating log of the  
record unit into a journal file (20), at the time of decision of a  
corresponding transaction. The transaction settled updating consists  
are written into the data file through a second buffer (22).  
After appropriate time, the data file is updated for block  
through the second buffer to the journal file based on the renewal  
log by a record processing part...

...ADVANTAGE - Enables to perform renewal of data file, without  
affecting transaction control, thus improving parallel execution  
nature of transaction...

Title Terms: FILE ;

International Patent Class (Main): G06F-012/00

International Patent Class (Additional): G06F-015/00

Manual Codes (EPI/S-X): T01-F02C

33/3,K/159 (Item 120 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011584858 \*\*Image available\*\*  
WPI Acc No: 1998-001987/199801  
XRPX Acc No: N98-001531

Storage management system for client server system - in which  
storage management server stores primary copies and additional  
back-up copies of client data files on sets of storage volumes  
organised into storage pools

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC ); IBM CORP (IBMC )  
Inventor: CANNON D M; KACZMARSKI M A; WARREN D P  
Number of Countries: 006 Number of Patents: 007  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 809184	A1	19971126	EP 97303323	A	19970515	199801 B
JP 10074168	A	19980317	JP 97122409	A	19970513	199821
KR 97076238	A	19971212	KR 9711432	A	19970329	199849
US 6148412	A	20001114	US 96652042	A	19960523	200060
			US 97922496	A	19970903	
EP 809184	B1	20020731	EP 97303323	A	19970515	200257
DE 6920714344	E	20020905	DE 97614344	A	19970515	200266
			EP 97303323	A	19970515	
JP 3538766	B2	20040614	JP 97122409	A	19970513	200439

Priority Applications (No Type Date): US 96652042 A 19960523; US 97922496 A 19970903

Patent Details:

Patent No	Kind	Lan	Pg	Main IPC	Filing Notes
EP 809184	A1	E	18	G06F-011/14	
Designated States (Regional): DE FR GB					
JP 10074168	A		19	G06F-012/16	
KR 97076238	A			G06F-007/06	
US 6148412	A			H02H-003/05	Cont of application US 96652042
EP 809184	B1	E		G06F-011/14	
Designated States (Regional): DE FR GB					
DE 6920714344	E			G06F-011/14	Based on patent EP 809184
JP 3538766	B2		20	G06F-012/00	Previous Publ. patent JP 10074168
Storage management system for client server system...					

...in which storage management server stores primary copies and additional back-up copies of client data files on sets of storage volumes organised into storage pools

...Abstract (Basic): The processing system uses a client server configuration and provides a system for managing multiple copies of client data files. A server coupled to a number of client systems organises sets of storage volumes into storage pools. Primary copies of the client data files are stored in primary storage pools, while additional back-up copies of the client data files are stored in secondary storage pools or copy storage pools...

...A server database maintains directory information about the original client data file and reference information about the location of multiple file copies within the server. A storage manager provides a control centre within the server, directing and coordinating the transfer of files between the various storage pools, and updating the server database with directory and reference location information...

...USE - Generating and managing **multiple copies** of client **data files** within **storage** management **server** system, by providing availability and recovery of **files** using **copy storage** pools...

...ADVANTAGE - **Multiple copies** of client **data files** improves availability and recovery of client **data files** in event of failures within processing system...

Title Terms: **STORAGE** ;

International Patent Class (Main): **G06F-007/06** ...

... **G06F-011/14** ...

... **G06F-012/00** ...

... **G06F-012/16**

International Patent Class (Additional): **G06F-013/00** ...

Manual Codes (EPI/S-X): **T01-G03** ...

... **T01-H07C5A** ...

... **T01-H07C5S** ...

... **T01-J05B4P**



33/3,K/139 (Item 100 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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011869391 \*\*Image available\*\*  
WPI Acc No: 1998-286301/199825  
XRPX Acc No: N98-225110

Cache control method in general purpose large sized computer system -  
involves deciding order of writing update record into storage  
device based on update generation identifier of update record  
during writing update record in cache into storage device  
Patent Assignee: HITACHI LTD (HITA )

Inventor: KANAI S

Number of Countries: 001 Number of Patents: 001

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 5748985	A	19980505	US 9376856	A	19930615	199825 B

Priority Applications (No Type Date): US 9376856 A 19930615

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
US 5748985	A	26	G06F-012/00	

Cache control method in general purpose large sized computer system...

...involves deciding order of writing update record into storage  
device based on update generation identifier of update record  
during writing update record in cache into storage device

...Abstract (Basic): The method involves a check point request with check  
point identifier to a cache controller (20) from a CPU (10) for  
executing a program. An update generation identifier corresponding to  
the check point identifier of the check point request is generated by  
cache controller in response to the check point request. The update  
generation identifier indicates whether the update record in the  
cache to be written into a storage device is first written into  
the cache in response to the update request. The update record is  
written in the cache by the cache controller in response to the  
update request...

...The completion of write operation is notified by the cache controller  
to the CPU, when the update record is written into the cache.  
The update record in the cache is written into the storage  
device by the cache controller. The update generation identifier  
generated at the last check point with the update record is  
written as update generation identifier of update record into  
cache if update generation identifier of updated record is not  
recorded. During writing update record in cache into the  
storage device, the order of writing the update record into  
storage device is decided based on update generation identifier of  
update record.

...

...Improves input processing efficiency. Increases effectiveness of output  
processing. Reduces time taken for recovery of data. Improves system  
performance

...Title Terms: COMPUTER ;

International Patent Class (Main): G06F-012/00

Manual Codes (EPI/S-X): T01-H01C4 ...

... T01-H03A

33/3,K/92 (Item 53 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014107618 \*\*Image available\*\*  
WPI Acc No: 2001-591830/200167  
XRPX Acc No: N01-441010

Database updating apparatus compares state data segment with  
current data segment, based on which current data segment is updated  
to reflect updated modifiable data segment  
Patent Assignee: INT BUSINESS MACHINES CORP (IBMC )  
Inventor: HO S; WATTS V L  
Number of Countries: 002 Number of Patents: 003  
Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
GB 2356949	A	20010606	GB 200018163	A	20000726	200167 B
US 6401103	B1	20020604	US 99369943	A	19990806	200242
GB 2356949	B	20031210	GB 200018163	A	20000726	200404

Priority Applications (No Type Date): US 99369943 A 19990806  
Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
GB 2356949	A	33	G06F-017/30	
US 6401103	B1		G06F-017/30	
GB 2356949	B		G06F-017/30	

Database updating apparatus compares state data segment with  
current data segment, based on which current data segment is updated  
to reflect updated modifiable data segment

Abstract (Basic):

... The memory device stores module executable by the processor  
. A transaction manager module retrieves original data segment  
from the database in response to search request from the user. A  
data segment duplicator module generates a modifiable data  
segment and a state data segment based on the original data  
segment, for transmission to a remote site. The state data segment is  
compared with current data segment, based on which current data  
segment, is updated .

... a) Database accessing method...

...b) Recording medium for storing database accessing program...

...c) Database updating method...

...d) Recording medium for storing database updating program...

...For accessing and editing records of database across internet while  
maintaining data integrity...

...Provides an optimistic locking mechanism which allows internet access to  
database while maintaining data integrity in such a web  
environment. Provides optimistic locking system that is capable of  
reliably...

...The figure shows the block diagram of system for employing internet  
enabled data locking system...

Title Terms: DATABASE ;  
International Patent Class (Main): G06F-017/30  
Manual Codes (EPI/S-X): T01-J05B

33/3,K/90 (Item 51 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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014537130 \*\*Image available\*\*

WPI Acc No: 2002-357833/200239

Data synchronization system and operation method

Patent Assignee: SAMSUNG ELECTRONICS CO LTD (SMSU )

Number of Countries: 001 Number of Patents: 002

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week	
KR 2001066852	A	20010711	KR 200033473	A	20000617	200239	B
KR 389839	B	20030702	KR 200033473	A	20000617	200406	

Priority Applications (No Type Date): US 99461072 A 19991214

Patent Details:

Patent No	Kind	Lan Pg	Main IPC	Filing Notes
KR 2001066852	A	1	G06F-017/40	
KR 389839	B		G06F-017/40	Previous Publ. patent KR 2001066852

Data synchronization system and operation method

Abstract (Basic):

... A data synchronization system and an operation method are provided to judge whether data is updated in real time even though the data are frequently changed, and to accurately synchronize data in a copy data file and a source data file on a communication network.

... A data synchronizer is composed of a great volume of copy controller and an update controller. The great volume of copy controller copies a plurality of...

...source data file to a copy data file. The update controller detects whether a data record previously copied from the source record file to the copy data file using the great volume of copy controller is changed. In addition, the update controller copies the data record changed from the data file to the copy data file.

Title Terms: DATA ;

International Patent Class (Main): G06F-017/40

Manual Codes (EPI/S-X): T01-J07A

THIS  
APPLICATION,

KOREAN

VERSION

33/3,K/34 (Item 34 from file: 347)  
DIALOG(R)File 347:JAPIO  
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03513868 \*\*Image available\*\*  
DATA UPDATING AND PROCESSING SYSTEM

PUB. NO.: 03-176768 [JP 3176768 A]  
PUBLISHED: July 31, 1991 (19910731)  
INVENTOR(s): OTOGAO HAJIME  
APPLICANT(s): TOSHIBA CORP [000307] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 01-315489 [JP 89315489]  
FILED: December 06, 1989 (19891206)  
JOURNAL: Section: P, Section No. 1269, Vol. 15, No. 426, Pg. 143,  
October 29, 1991 (19911029)

DATA UPDATING AND PROCESSING SYSTEM

INTL CLASS: G06F-015/22 ; G06F-015/20  
...JAPIO CLASS: Computer Applications)

#### ABSTRACT

PURPOSE: To improve the efficiency of data processing by comparing the data stored in a writing position with the data held in a data holding means, and when both the data coincide with each other, permitting the writing of the updating data .

...

...CONSTITUTION: An updating identification module 15 reads out the line data stored on an updating data writing position at present from a processing objective file 16 and decides whether the read data are the same as the line data stored in an unupdated data area 14 or not. When both the data are different from each other, the line data to be updated have been already updated by another computer device is decided and writing in the file 16 is inhibited. When both the data are the same, the updating processing of the current computer device is regarded as the initial updating /processing and the updating /processing of the line data to be updated , i.e. writing in the file 16, is permitted. Thus, plural computer devices can simultaneously execute tabulating processing.

33/3,K/25 (Item 25 from file: 347)  
DIALOG(R)File 347:JAPIO  
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05814408 \*\*Image available\*\*  
PROCESS TAKING-OVER METHOD OF **PARALLEL** PROCESSING SYSTEM

PUB. NO.: 10-097508 [JP 10097508 A]  
PUBLISHED: April 14, 1998 (19980414)  
INVENTOR(s): KANAZAWA YUJI  
APPLICANT(s): FUJITSU LTD [000522] (A Japanese Company or Corporation), JP  
(Japan)  
APPL. NO.: 08-251215 [JP 96251215]  
FILED: September 24, 1996 (19960924)

PROCESS TAKING-OVER METHOD OF **PARALLEL** PROCESSING SYSTEM

INTL CLASS: G06F-015/16 ; G06F-015/16 ; G06F-011/20 ; G06F-019/00  
...JAPIO CLASS: **Computer** Applications); 45.1 (INFORMATION PROCESSING...  
...Arithmetic Sequence **Units** )

#### ABSTRACT

...BE SOLVED: To prevent the restart of a processing from being delayed without lowering a **parallel** processing speed with respect to the process taking-over method for the **parallel** processing system which adds an anti-fault function to a **parallel** processor .

...

...SOLUTION: This process taking-over method has a **parallel** processor 1 which performs plural processing in **parallel** , a processor 2 which takes over operation and performs a processing if the **parallel** processor 1 gets out of order, and a **data** storage means 3 which is accessed by the **parallel** processor 1 and processor 2 and stores data , and the **parallel** processor 1 after altering 1st data alters 2nd data relating to the 1st data . In this case, the **parallel** processor 1 has double data allowing a temporarily contradictory state, alters one data without exclusive control and reads out the other data , and performs exclusive control over the other data and transfers the other data to the processor 2, which takes over and performs the processing by using the transferred data as an initial value if the **parallel** processor 1 gets out of order.

Set	Items	Description
S1	3142643	COPY? OR COPIE? OR WRITE? OR STORE? OR RECORD?
S2	1310302	WRITING? OR WRITTEN? OR STORING? OR STORAG?
S3	10166913	CONTROLLER? OR MODULE? OR UNIT? OR SERVER? OR APPARATUS? OR COMPUTER? OR HARDWARE? OR PROCESSOR?
S4	8198538	UPDATE? OR UPDATING? OR UPGRAD? OR AMEND? OR CHANGE? OR MODIF? OR ALTER?
S5	5019067	DETECT? OR TRACK? OR MONITOR? OR ASCERTAIN? OR AUDIT?
S6	21124120	RECOGN? OR EVALUAT? OR ANALY? OR ASSESS? OR DETERMIN?
S7	1430874	SYNCHRON? OR "SAME"()TIME? OR CONTEMPORAN? OR SIMULTAN? OR SYNC????
S8	7961422	CONCURREN? OR COINCID? OR DURING? OR WHILE? OR WHILST? OR PARALLEL?
S9	8704685	PLURAL? OR MULTIP? OR MULTITUD? OR SEVERAL? OR MANY OR NUMEROUS? OR BULK? OR VOLUM?
S10	8231508	DATA? OR FILE? OR TABLE? ? OR RECORD? ?
S11	9037041	FIRST? OR INITIAL? OR BEGINNING? OR PRIMARY? OR 1ST OR SOURCE?
S12	1388462	ORIGINAL? OR ONSET? OR EARLIEST? OR PREMIER? OR SEMINAL?
S13	10169923	2ND OR SECOND? OR ANOTHER? OR OTHER? OR ADDITIONAL? OR NUMBER() (2 OR TWO)
S14	2185162	EXTRA? OR BACKUP? OR AUXILIARY? OR DESTINATION?
S15	60893	INTRODUCTORY? OR NUMBER() (ONE OR 1) OR LEADOFF? OR LEAD?()-OFF.
S16	29312	S1:S2 AND S4 AND S3 AND S7:S8 AND S10
S17	355	S16 AND S1:S2(5N)S3 AND S4:S6(5N)S3 AND S1:S2(5N)S7:S8
S18	4705	S16 AND S10(5N)S1:S2(7N)S7:S8
S19	581	S18 AND S10(5N) (S11:S15) (7N)S7:S8
S20	2995	S18 AND S4 AND S5:S6
S21	341	S9(5N)S10 AND S19:S20
S22	1139	S17 OR S19 OR S21
S23	48	S22 AND S17 AND (S19 OR S21)
S24	111	S22 AND S19 AND (S17 OR S21)
S25	112	S22 AND S21 AND (S17 OR S19)
S26	133	S23:S25
S27	94	S26 AND PY<2000
S28	75	RD (unique items)
File	2:INSPEC 1969-2005/Oct W1	(c) 2005 Institution of Electrical Engineers
File	6:NTIS 1964-2005/Oct W1	(c) 2005 NTIS, Intl Cpyrght All Rights Res
File	8:Ei Compendex(R) 1970-2005/Oct W1	(c) 2005 Elsevier Eng. Info. Inc.
File	34:SciSearch(R) Cited Ref Sci 1990-2005/Oct W1	(c) 2005 Inst for Sci Info
File	35:Dissertation Abs Online 1861-2005/Sep	(c) 2005 ProQuest Info&Learning
File	65:Inside Conferences 1993-2005/Oct W2	(c) 2005 BLDSC all rts. reserv.
File	94:JICST-EPlus 1985-2005/Aug W2	(c)2005 Japan Science and Tech Corp(JST)
File	99:Wilson Appl. Sci & Tech Abs 1983-2005/Sep	(c) 2005 The HW Wilson Co.
File	111:TGG Natl.Newspaper Index(SM) 1979-2005/Oct 11	(c) 2005 The Gale Group
File	144:Pascal 1973-2005/Oct W1	(c) 2005 INIST/CNRS
File	239:Mathsci 1940-2005/Nov	(c) 2005 American Mathematical Society
File	256:TecInfoSource 82-2005/Nov	

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28/3,K/18 (Item 5 from file: 6)

DIALOG(R)File 6:NTIS

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1547423 NTIS Accession Number: N90-29976/9

**Low Cost Management of Replicated Data in Fault-Tolerant Distributed Systems**

Joseph, T. A. ; Birman, K. P.

Cornell Univ., Ithaca, NY.

Corp. Source Codes: 000607000; C5729333

Sponsor: National Aeronautics and Space Administration, Washington, DC.

Report No.: NAS 1.26:186370; NASA-CR-186370

cl990 17p

Languages: English

Journal Announcement: GRAI9104; STAR2824

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NTIS Prices: PC A03/MF A01

**Low Cost Management of Replicated Data in Fault-Tolerant Distributed Systems**

Many distributed systems replicate data for fault tolerance or availability. In such systems, a logical update on a data item results in a physical update on a number of copies. The synchronization and communication required to keep the copies of replicated data consistent introduce a delay when operations are performed. A technique is described that relaxes the usual degree of synchronization, permitting replicated data items to be updated concurrently with other operations, while at the same time ensuring that correctness is not violated. The additional concurrency thus obtained results in better response time when performing operations on replicated data. How this technique performs in conjunction with a roll-back and a roll-forward failure...

Descriptors: \*Computer networks; \*Data management; \*Distributed processing; \*Fault tolerance; \*On-line systems; \*Operating systems (Computers); Computer systems design; Computer systems performance; Concurrent processing; Data retrieval; Synchronism; System failures

28/3,K/24 (Item 11 from file: 6)

DIALOG(R)File 6:NTIS

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0745162 NTIS Accession Number: AD-A062 967/5/XAB

Data Synchronization Schemes for Multiple Copied Data Bases  
(Final technical rept. Jan-Jun 78)

Lee, C. H.

Syracuse Univ NY

Corp. Source Codes: 339600

Report No.: RADC-TR-78-240

Dec 78 143p

Languages: English

Journal Announcement: GRAI7910

Order this product from NTIS by: phone at 1-800-553-NTIS (U.S. customers); (703)605-6000 (other countries); fax at (703)321-8547; and email at orders@ntis.fedworld.gov. NTIS is located at 5285 Port Royal Road, Springfield, VA, 22161, USA.

NTIS Prices: PC A07/MF A01

Data Synchronization Schemes for Multiple Copied Data Bases

In the network environment with distributed multiple - copied files , a lockout mechanism is required to guarantee the data synchronization . File access requests from geographically dispersed computer nodes have to be coordinated to maintain consistency of multiple - copied files . The advantages of a multiple - copied file in a loosely coupled computer communication network are its reliability to partial network failures and good response to real time file manipulation. In this report, the fundamental problems relating to the lockout synchronization of a multiple - copied file are presented from a new point of view. It can be shown that the file lockout state of the distributed multiple copies is an inherent characteristic of the file manipulation operations. The objective of this work was to determine the performance of data synchronization techniques in the maintenance of distributed multiple-copied files in a computer network using G.P.S.S. simulation. The system visualized is a set of identical copies of a file residing in nodes that form a computer network. Each file is supervised by a Local File Manager (L.F.M.) which is under a control scheme to maintain the congruency and consistency of these files by synchronizing the file access and updating information. This is achieved by locking out the file copies once an L.F.M. was granted the right of updating a file for a particular user. (Author)

Descriptors: \*Data management; \*Communications networks; \*Synchronization (Electronics); \*Computer files ; Information theory; Data bases; Computer programming; Distribution; Information transfer; Real time; Simulation languages

Identifiers: \*Updating ; Computer networks ; Distributed data bases; Lockout synchronization ; GPSS programming language; NTISDODXA

28/3,K/37 (Item 9 from file: 8)  
DIALOG(R)File 8: Ei Compendex(R)  
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04265025 E.I. No: EIP95102884315

**Title:** Data and computation transformations for multiprocessors  
**Author:** Anderson, Jennifer M.; Amarasinghe, Saman P.; Lam, Monica S.  
**Corporate Source:** Stanford Univ, Stanford, CA, USA  
**Conference Title:** Proceedings of the 5th ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming  
**Conference Location:** Santa Barbara, CA, USA **Conference Date:** 19950719-19950721

**E.I. Conference No.:** 43728  
**Source:** Proceedings of the ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming, PPOPP 1995. ACM, New York, NY, USA. p 166-178

**Publication Year:** 1995  
**CODEN:** 002167  
**Language:** English

**Title:** Data and computation transformations for multiprocessors  
...Abstract: performance of modem multiprocessor architectures. We have developed the first compiler system that fully automatically **parallelizes** sequential programs and **changes** the original array layouts to improve memory system performance. Our optimization algorithm consists of two steps. The **first** step chooses the **parallelization** and computation assignment such that **synchronization** and **data** sharing are minimized. The **second** step then restructures the layout of the **data** in the shared address space with an algorithm that is based on a new **data** transformation framework. We ran our compiler on a set of application programs and measured their performance on the Stanford DASH multiprocessor. Our results show that the compiler can effectively optimize **parallelism** in conjunction with memory subsystem performance. (Author abstract) 35 Refs.

**Descriptors:** \*Parallel processing systems; Hierarchical systems; Digital **storage**; **Parallel** algorithms; Optimization; Computational complexity; **Data** structures; Program compilers; **Computer** architecture; Computational methods

28/3,K/42 (Item 14 from file: 8)  
DIALOG(R)File 8:EI Compendex(R)  
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03409526 E.I. Monthly No: EI9204044773

Title: A hybrid scheme for processing data structures in a dataflow environment.

Author: Lee, Ben; Hurson, A. R.; Shirazi, Behrooz

Corporate Source: Dept of Electr & Comput Eng, Oregon State Univ, Corvallis, OR, USA

Source: IEEE Transactions on Parallel and Distributed Systems Jan 1992 p 83-96

Publication Year: 1992

CODEN: ITDSEO ISSN: 1045-9219

Language: English

Title: A hybrid scheme for processing data structures in a dataflow environment.

Abstract: The asynchronous nature of the dataflow model of computation allows the exploitation of maximum inherent parallelism in many application programs. However, before the dataflow model of computation can become a viable alternative to the control flow model of computation, one has to find practical solutions to some major problems such as efficient handling of data structures. This paper introduces a new model for handling data structures in a dataflow environment. The proposed model combines constant time access capabilities of vectors as well as the flexibility inherent in the concept of pointers. This allows a careful balance between copying and sharing to optimize the storage and processing overhead incurred during the operations on data structures. The model is compared by simulation to other data structure models proposed in the literature, and the results are good. 38 Refs.

Descriptors: \*COMPUTE R SYSTEMS, DIGITAL...

... Parallel Processing; COMPUTER ARCHITECTURE; DATA PROCESSING...

... Data Structures

Identifiers: DATAFLOW COMPUTER ARCHITECTURE

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**MAINTAINING CONSISTENCY IN MOBILE SYSTEMS (ASYMMETRIC CHANNELS, MOBILE  
COMPUTING, CACHE CONSISTENCY, DISTRIBUTED SYSTEMS)**

Author: GURIJALA, ANIL KUMAR REDDY

Degree: PH.D.

Year: 1997

Corporate Source/Institution: TEXAS A&M UNIVERSITY (0803)

Source: VOLUME 58/07-B OF DISSERTATION ABSTRACTS INTERNATIONAL.  
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Year: 1997

In the client- **server** based systems, **data** is cached at clients to improve the performance. When **data** items are **updated** at the **server**, inconsistency arises among these **copies**. Maintaining consistency is one of the major issues in these systems. This problem is more...

...to improve the scalability. In these channels, the clients do not send requests to the **server**. The **server** continuously broadcasts the **data** over the channel. The clients listen to the channel and access the required **data** whenever it is broadcast. To improve the performance, the clients cache **data**. Consistency problems arise when the **data** is **updated** at the **server**. Two schemes, immediate propagation scheme and invalidation scheme, are used in the traditional systems. The performance of these schemes in the one-way broadcast channels is **analyzed**.

Many other issues arise **while** using these schemes in this environment. Some of these issues, like missing **updates**, effect on the tuning time and tolerating communication errors, are discussed.

The mobility of clients is another parameter that affects consistency and performance in distributed systems. In distributed systems, **data** is often replicated at **multiple servers**. **Data copies** at these **servers** are periodically **synchronized** to reduce the communication overhead. But, in a mobile system, a client often moves from place to place. If the **servers** are not in consistent state, it has to access from the previous **server**, which incurs a high communication cost. An optimal period of **synchronization** which depends on the mobility rate of clients is calculated. Similarly, various schemes that are used to improve the **data** access time of a mobile client are **analyzed**.

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CONCURRENT DATA STREAMS WITH HETEROGENEOUS DEVICES ( PARALLEL PROCESSING)

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Year: 1997

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CONCURRENT DATA STREAMS WITH HETEROGENEOUS DEVICES ( PARALLEL PROCESSING)

Year: 1997

Descriptors: COMPUTER SCIENCE

The ability to access **several datasets concurrently** on heterogeneous **storage** devices is becoming increasingly important for **data** -intensive applications, including **database** , **data** mining, and **data** visualization systems. The basic problem faced by applications is that **while datasets** can reside on a variety of **storage** systems such as **secondary** , tertiary, and network **storage** , the CPU can only operate on memory-resident **data** . Practical solutions are required to allow applications to move **datasets** from heterogeneous **storage** devices into memory and back to the devices **while** maximizing **data** transfer efficiency and minimizing the amount of time the CPU waits for I/O.

A key factor in achieving high **data** transfer efficiency is to exploit I/O **concurrency** . The continually increasing performance gap between CPUs and **storage** devices has made it imperative for the **computer** system to perform **data** transfers on **several storage** devices **concurrently** . Operating systems have traditionally attempted to increase I/O **concurrency** and reduce the amount of time the CPU waits for I/O by overlapping the CPU processing of one application with the I/Os of another (inter-application I/O **concurrency** ). An **alternative** is to overlap the CPU processing of a single application with its own **data** transfers (intra-application I/O **concurrency** ). Current trends in computing technology are making the latter approach increasingly important. The transition of processing from the mainframe to the desktop, **changes** in **processor** and **storage** device technologies, and the emergence of the World Wide Web are all contributing to the shift in the nature of I/O **concurrency** .

The goal of the research presented in this thesis is to explore **data** buffering mechanisms and policies which allow applications to exploit I/O **concurrency** on heterogeneous **storage** devices. The central theme of the research is application-driven I/O **concurrency** . The first part of this thesis focuses on the performance characteristics of **storage** devices and I/O interfaces. Next, we describe a buffer management system which allows applications to access **data** on heterogeneous devices efficiently, **concurrently** , and uniformly. In the third part of the thesis, we examine three applications which use the buffer manager: the DEVise **data** visualization system, a **file** sorting application, and a relational join.

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**HARDWARE AND SOFTWARE SUPPORT FOR SYNCHRONIZATION AND DATA PARALLEL OPERATIONS**

Author: SONG, SEUNGYOON PETER

Degree: PH.D.

Year: 1993

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Source: VOLUME 54/08-B OF DISSERTATION ABSTRACTS INTERNATIONAL.

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**HARDWARE AND SOFTWARE SUPPORT FOR SYNCHRONIZATION AND DATA PARALLEL OPERATIONS**

Year: 1993

Scalable **parallel computers** must take advantage of the differences between sharing behaviors exhibited by **synchronization** and shared **data** accesses. Due to the way **parallel** programs are generally written, **synchronization** accesses tend to exhibit greater degree, both in number of processes involved as well as duration, of sharing than do shared **data** accesses. Although there are far fewer memory locations used for **synchronization**, their percentage of total references to shared memory is much higher, reaching as high as 50-70%, than that of shared **data** accesses. **Parallel computers** designed to handle shared **data** accesses well may not perform well with applications that exhibit frequent **synchronization**, due to large number of access conflicts the **synchronization** references generate. **Parallel computers** designed to handle both well are expensive to build since some form of combining mechanism...

...deal with large number of access conflicts. This thesis proposes that a combination of simple **hardware** and software **synchronization** schemes can meet the requirements of scalable **computers**, provided that **synchronization** be handled separately from shared **data** accesses. To do so, scalable **computers** must **first** provide support for atomic operations that require minimum coherency and atomicity overhead, that are easily extensible to handle multiple **synchronization** variables, and that are available at the programming language level to ensure the use of simple and efficient solutions. This thesis describes a way to make read- **modify** - **write** instructions work with coherent caches, proposes a small cache to separately **store synchronization** variables, and proposes lock space to grant a process exclusive access to it. Scalable **computers** must then handle high rate of access conflicts caused by **synchronization** references. This thesis proposes two solutions. The first is to use a bit-serial network...

...to a memory location in  $O(\log n)$  time,  $n$  being the number of **processors** in the system. The second is to further reduce **synchronization** latency by overlapping it with computation in software. Scalable **computers** must also support **data parallel** programming model to harness from the biggest potential **source** of **parallelism** in the easiest way. The bit-serial combining network also provides **many** useful **data parallel** operators.

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**ON-LINE PROCESSING IN LARGE-SCALE TRANSACTION SYSTEMS ( DATABASE , QUERY PROCESSING)**

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**ON-LINE PROCESSING IN LARGE-SCALE TRANSACTION SYSTEMS ( DATABASE , QUERY PROCESSING)**

Year: 1992

Descriptors: COMPUTER SCIENCE

In this thesis, we provide techniques to adapt current **database** technology to account for the following trends that can be observed in **database** management system (DBMS) usage: (1) DBMSs are being increasingly used in applications, like **computerized** stock trading, that have very high transaction rates. (2) **Database** sizes are growing rapidly, and future **databases** are expected to be **several** orders of magnitude larger than the largest **databases** in operation today. (3) Next generation DBMSs are expected to gravitate more and more towards...

...day) operation.

In order to handle high transaction rates, future DBMSs have to use highly **concurrent** algorithms for managing often-used **auxiliary data** structures like indices. To better understand the performance of **concurrency** control algorithms for index access, we first compare the performance of B-tree **concurrency** control algorithms using a simulation model of a centralized DBMS. Our performance study compares a...

...structures, and workloads. Based on the performance results, we characterize how specific details of a **concurrency** control algorithm can enhance or reduce **concurrency**.

On-line DBMS utilities are an important step towards achieving the goal of 24  $\times$  7 operation for very large **databases**. This thesis addresses issues involved in executing on-line utilities by developing several new algorithms for on-line index construction. These algorithms each permit an index to be built **while** the corresponding **data** is **concurrently** accessed for reads and **writes**. A comprehensive performance study of the proposed on-line index construction algorithms is used to **determine** the best candidate for use in a DBMS.

Applying the techniques used for on-line index construction to query processing leads to a new, highly **concurrent** method of query execution called compensation-based query processing. In this new approach to query processing, **concurrent updates** to any **data** participating in a query are communicated to the query's on-line query **processor**, which then compensates for these **updates** so that the final answer reflects **changes** caused by the **updates**. Very high **concurrency** is achieved by locking **data** only briefly, at the tuple-level, **while** still delivering transaction-consistent answers to queries.